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DERWENT-WEEK: 199640

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TITLE: Controllable lighting effects using polymer  
optical fibres - with rainbow coloured side emissions  
ensured by using special sheathing and cladding materials

PATENT-ASSIGNEE: ANONYMOUS [ANON]

PRIORITY-DATA: 1996RD-0388052 (July 20, 1996)

PATENT-FAMILY:

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APPLICATION-DATA:

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INT-CL (IPC): G02F000/00

ABSTRACTED-PUB-NO: RD 388052A

BASIC-ABSTRACT:

End-emitting and side-emitting solid-core polymer optical fibers (POF's) have found use for illumination. Side-emitting fibers can be made to produce novel, controllable effects by using cladding materials with special properties. In this context, the cladding refers to the material immediately surrounding the core of the POF. In some cases, sheathing material may surround the cladding. Examples of special effects include: 1. Emission of light from a strip or slit along the axis of the POF. This effect can be produced by preparing a cladding

that is internally reflective, except along an axial strip. Such a cladding can be prepared, for example, using a striping die on an extrusion line, or by applying a masking material, such as a reflective coating, to the cladding. 2. Alternating bands of light and darkness along the axis of the POF. This effect could be produced by preparing a cladding that is alternately reflective and non-reflective. Such a cladding can be prepared, for example, by periodically applying a reflective coating at the outlet of an extrusion die. 3. Providing uniform light intensity along a length of POF. Normally, a side-emitting POF emits more light near the light source than it does far away from the light source. This tendency can be overcome by providing a cladding whose internal reflectance is graduated, with higher internal reflectance near the light source and lower internal reflectance far away from the light source. Such a cladding can be prepared, for example, by varying the thickness of the cladding, with a thicker cladding near the light source and a thinner cladding further from the light source. 4. Restricting the viewing angle over which light can be seen from the side-emitting POF. In some cases, it may be preferable to provide indirect lighting. In these cases, a side-emitting POF can be prepared with a cladding that restricts the viewing angle over which light can be seen directly. Indirect lighting can be provided by positioning, for example, a painting within the angle of direct lighting, but restricting the observer's position outside the directly lit area. 5. Rainbow-coloured side emissions.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: CONTROL LIGHT EFFECT POLYMER OPTICAL FIBRE RAINBOW COLOUR SIDE

EMIT ENSURE SPECIAL SHEATH CLAD MATERIAL

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Polymer Index [1.2]

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